

SEQUENCE LISTING

<110> Serino, Laura
 Leuzzi, Rosanna
 Fontana, Maria Rita
 Monaci, Elisabetta
 Pizza, Mariagrazia

<120> Immunogenic Compositions Comprising Multiple Gonococcal Antigens

<130> PP0020705.0003

<140> US 10/561,235
 <141> 2005-12-19

<150> 0315021.6
 <151> 2003-06-26

<150> PCT/IB2004/002421
 <151> 2004-06-25

<160> 7

<170> SeqWin99, version 1.02

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 <213> Neisseria gonorrhoeae

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 Ala Leu Ser Gly Cys Val Ala Asp Pro Val Thr Gly Gln Gln Ser Pro
 20 25
 Asn Lys Ser Ala Met Tyr Gly Leu Gly Gly Ala Ala Val Cys Gly Ile
 35 40 45
 Val Gly Ala Leu Thr His Ser Gly Lys Gly Ala Arg Asn Ser Ala Leu
 50 55 60
 Ala Cys Gly Ala Ile Gly Ala Gly Val Gly Gly Tyr Met Asp Tyr Gln
 65 70 75 80
 Glu Gln Arg Leu Arg Gln Asn Leu Ala Gly Thr Gln Ile Glu Ile Gln
 85 90 95
 Arg Gln Gly Asn Gln Ile Arg Leu Val Met Pro Glu Ser Val Thr Phe
 100 105 110
 Ala Thr Gly Ser Ala Ala Leu Gly Gly Ser Ala Gln Tyr Ala Leu Asn
 115 120 125

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Thr Ala Ala Gln Thr Leu Val Gln Tyr Pro Asp Thr Thr Leu Thr Ile
 130 135 140
 Asn Gly His Thr Asp Asn Thr Gly Ser Asp Ala Val Asn Asn Pro Leu
 145 150 155
 Ser Gln His Arg Ala Gln Ala Val Ala Tyr Tyr Leu Gln Thr Arg Gly
 165 170 175
 Val Ala Ala Ser Arg Leu Thr Val Tyr Gly Tyr Gly Ser His Met Pro
 180 185 190
 Val Ala Ser Asn Ala Thr Val Glu Gly Arg Ala Gln Asn Arg Arg Val
 195 200 205
 Glu Ile Leu Ile Asn Pro Asp Gln Arg Ala Val Asn Ala Ala Arg His
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 Met
 225

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 <213> Neisseria gonorrhoeae

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 Ser Phe Thr Met Ile Arg Leu Thr Arg Ala Phe Ala Ala Ala Leu Ile
 20 25 30
 Gly Leu Cys Cys Thr Thr Gly Ala His Ala Asp Thr Phe Gln Lys Ile
 35 40 45
 Gly Phe Ile Asn Thr Glu Arg Ile Tyr Leu Glu Ser Lys Gln Ala Arg
 50 55 60
 Asn Ile Gln Lys Thr Leu Asp Gly Glu Phe Ser Ala Arg Gln Asp Glu
 65 70 75 80
 Leu Gln Lys Leu Gln Arg Glu Gly Leu Asp Leu Glu Arg Gln Leu Ala
 85 90 95
 Gly Gly Lys Leu Lys Asp Ala Lys Lys Ala Gln Ala Glu Glu Lys Trp
 100 105 110
 Arg Gly Leu Val Glu Ala Phe Arg Lys Lys Gln Ala Gln Phe Glu Glu
 115 120 125
 Asp Tyr Asn Leu Arg Arg Asn Glu Glu Phe Ala Ser Leu Gln Gln Asn
 130 135 140
 Ala Asn Arg Val Ile Val Lys Ile Ala Lys Gln Glu Gly Tyr Asp Val
 145 150 155 160
 Ile Leu Gln Asp Val Ile Tyr Val Asn Thr Gln Tyr Asp Val Thr Asp
 165 170 175
 Ser Val Ile Lys Glu Met Asn Ala Arg
 180 185

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 <213> Neisseria gonorrhoeae

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 20 25 30
 Glu Pro Ala Ala Ala Ser Ala Ala Gln Gly Asp Thr Ser Ile Gly
 35 40 45
 Ser Thr Met Gln Gln Ala Ser Tyr Ala Met Gly Val Asp Ile Gly Arg
 50 55 60
 Ser Leu Lys Gln Met Lys Glu Gln Gly Ala Glu Ile Asp Leu Lys Val
 65 70 75 80
 Phe Thr Asp Ala Met Gln Ala Val Tyr Asp Gly Lys Glu Ile Lys Met
 85 90 95
 Thr Glu Glu Gln Ala Gln Glu Val Met Met Lys Phe Leu Gln Glu Gln
 100 105 110
 Gln Ala Lys Ala Val Glu Lys His Lys Ala Asp Ala Lys Ala Asn Lys
 115 120 125
 Glu Lys Gly Glu Ala Phe Leu Lys Glu Asn Ala Ala Lys Asp Gly Val
 130 135 140
 Lys Thr Thr Ala Ser Gly Leu Gln Tyr Lys Ile Thr Lys Gln Gly Glu
 145 150 155 160
 Gly Lys Gln Pro Thr Lys Asp Asp Ile Val Thr Val Glu Tyr Glu Gly
 165 170 175
 Arg Leu Ile Asp Gly Thr Val Phe Asp Ser Ser Lys Ala Asn Gly Gly
 180 185 190
 Pro Ala Thr Phe Pro Leu Ser Gln Val Ile Pro Gly Trp Thr Glu Gly
 195 200 205
 Val Arg Leu Leu Lys Glu Gly Gly Glu Ala Thr Phe Tyr Ile Pro Ser
 210 215 220
 Asn Leu Ala Tyr Arg Glu Gln Gly Ala Gly Glu Lys Ile Gly Pro Asn
 225 230 235 240
 Ala Thr Leu Val Phe Asp Val Lys Leu Val Lys Ile Gly Ala Pro Gly
 245 250 255
 Asn Ala Pro Ala Lys Gln Pro Asp Gln Val Asp Ile Lys Lys Val Asn
 260 265 270

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 1 5 10 15
 Thr Asp Glu Thr Gly Asn Pro Lys Val Pro Ser Tyr Gly Phe Ser Glu
 20 25 30
 Glu Lys Ile Gly Trp Ile Leu Val Leu Asp Lys Glu Gly Arg Leu Lys
 35 40 45
 Thr Val Pro Asn Leu Thr Ala Asp Lys Lys Pro Gln Pro Lys Leu
 50 55 60
 Met Ser Val Pro Arg Pro Glu Lys Arg Thr Ser Gly Ile Lys Pro Asn
 65 70 75 80
 Phe Leu Trp Asp Lys Thr Ala Tyr Ala Leu Gly Val Glu Ala Asn Lys
 85 90 95
 Asn Lys Ala Glu Ala Lys Glu Lys Pro Phe Thr Pro Ser Glu Lys Thr
 100 105 110
 Phe Glu Ala Phe Lys Gln Tyr His Leu Asp Leu Leu Gln Asn Ser Glu
 115 120 125
 Asp Glu Gly Leu Gln Ala Leu Cys Arg Phe Leu Gln Asn Trp Gln Pro
 130 135 140
 Ala His Phe Ala Ala Glu Asn Leu Pro Ala Glu Met Leu Asp Ser Asn
 145 150 155 160
 Thr Ala Phe Ser Leu Glu Lys Pro Thr Ala Leu Ile His Lys Arg Glu
 165 170 175
 Ala Ala Gln Thr Leu Trp Ala Gly Cys Leu Lys Ser Asp Glu Ala Leu
 180 185 190
 Glu Ser Leu Cys Leu Ile Ser Gly Asp Thr Ala Pro Ile Ala Arg Leu
 195 200 205
 His Pro Ala Ile Lys Gly Val Phe Gly Gly Gln Ser Ser Gly Gly Ser
 210 215 220
 Ile Ile Ser Phe Asn Lys Glu Ala Phe Ser Ser Phe Gly Lys Glu Gln
 225 230 235 240
 Gly Ala Asn Ala Pro Val Ser Glu Gln Ser Ala Phe Ala Tyr Thr Thr
 245 250 255
 Ala Leu Asn Tyr Leu Leu Arg Arg Glu Asn Asn His Cys Leu Thr Ile
 260 265 270
 Gly Asp Ala Ser Thr Val Phe Trp Ala Glu Ala Asp Asp Ile Val Asp
 275 280 285

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<400> 6

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Leu Ile Val Arg Ser His Tyr Arg Trp Thr Tyr Phe Phe Ala Ser Ala
20 25 30
Leu Phe Val Phe Leu Ala Gly Gly Met Leu Met Leu Thr Ala Gln Trp
35 40 45
Gln Arg Ala Leu Asn Phe Ala Ser Val Trp Phe Val Leu Ile Leu
50 55 60
Phe His Arg Leu Lys Ile His Tyr Tyr Lys Gln Pro Leu Leu Ile Ser
65 70 75 80
Asp Phe Leu Leu Ile Ala Asp Trp Arg Asn Trp Glu Thr Leu Phe His
85 90 95
Tyr Lys Glu Ala Val Ile Gly Met Ala Gly Leu Leu Ala Leu Ala Gly
100 105 110
Tyr Ala Val Phe Gly Trp Ser Gly Ala Asp Ser Leu Gly Met Pro Trp
115 120 125
Arg Trp Ala Gly Ala Val Leu Phe Ala Ala Ala Phe Val Ser Val Arg
130 135 140
His Phe Ser Lys His Pro Gly Ala Val Lys Thr Trp Leu Asp Ser Leu
145 150 155 160
Pro Asp Asp Gly Arg Asp Val Phe Leu Asn Leu Pro Met Ser Cys Arg
165 170 175
Ala Val Phe Phe Gln Val Pro Val Phe Glu Gly Asp Gly Glu Ala Phe
180 185 190
Ala Arg Gln Met Pro Ser Glu Thr Arg Pro Tyr Gly Met Ser Asp Glu
195 200 205
Lys Pro Asp Ile Val Val Thr Leu Met Glu Ser Thr Leu Asp Pro His
210 215 220
Cys Phe Asp Phe Ala Ala Lys Ile Pro Asp Leu Lys Met Phe Gly
225 230 235 240
Arg Gln Glu Asp Thr Val Phe Ser Ser Pro Leu Arg Val His Thr Phe
245 250 255
Gly Gly Ala Thr Trp Lys Ser Glu Phe Ala Phe Leu Ala Gly Val Pro
260 265 270
Ser Thr Asp Phe Gly Ala Leu Ala Ser Gly Val Phe Tyr Ser Val Val
275 280 285
Pro His Leu Gln Thr Gly Phe Val Arg Asn Leu Arg Glu His Gly Tyr
290 295 300
Phe Cys Val Ala Leu Ser Pro Phe Thr Lys Gly Asn Tyr Asn Ala Lys
305 310 315 320
Ala Ala Tyr Asp His Phe Gly Phe Asn Leu Met Phe Gln Pro Gln Asp
325 330 335

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Leu Gly Tyr Pro Ala Pro Met Gly Lys Asn Leu Trp His Ile Ser Ser
 340 345 350
 Glu Glu Met Met Gln Tyr Ala Arg Met Ile Leu Glu Lys Arg His Pro
 355 360 365
 Asp Leu Glu Asn Val Arg Gln Pro Met Phe Val Tyr Val Leu Thr Met
 370 375 380
 Lys Glu His Gly Pro Tyr Arg Thr Asp Thr Asp Asn Val Phe Asp Leu
 385 390 395 400
 Asp Ala Pro Asp Leu Asn Ala Lys Thr Val Ser Ala Leu Asn Asp Tyr
 405 410 415
 Ile Gly Arg Ile Ala Asp Leu Asp Lys Ala Val Glu Ser Phe Asp Arg
 420 425 430
 Tyr Leu His Glu Arg Gly Lys Pro Phe Val Phe Gly Tyr Phe Gly Asp
 435 440 445
 His Gln Val Pro Phe Glu Gly Val Ser Val Arg Lys Trp Asp Tyr
 450 455 460
 Ala Gln Pro Asp Tyr Val Thr Gln Phe Ala Val Arg Ser Asn Ile Ala
 465 470 475 480
 Gly Gly Phe Val Gln Arg Gln Asp Phe Leu Asp Leu Ala Phe Ala Gly
 485 490 495
 Gly Val Leu Met Glu Ala Ala Gly Leu Glu Ala Lys Asp Gly Phe Met
 500 505 510
 Arg Ala Asn Met Ala Met Arg Gly Leu Cys Gly Gly Gly Leu Glu Asp
 515 520 525
 Cys Pro Asn Arg Glu Leu Val Gly Asn Tyr Arg Asn Tyr Leu Tyr Asp
 530 535 540
 Val Leu Lys Ile Ala Arg
 545 550
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 Met Lys Thr Thr Asp Lys Arg Thr Thr Glu Thr His Arg Lys Ala Pro
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 Lys Thr Gly Arg Ile Arg Phe Ser Pro Ala Tyr Leu Ala Ile Cys Leu
 20 25 30
 Ser Phe Gly Ile Leu Pro Gln Ala Arg Ala Gly His Thr Tyr Phe Gly
 35 40 45
 Ile Asn Tyr Gln Tyr Tyr Arg Asp Phe Ala Glu Asn Lys Gly Lys Phe
 50 55 60
 Ala Val Gly Ala Lys Asp Ile Glu Val Tyr Asn Lys Lys Gly Glu Leu
 65 70 75 80

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Val Gly Lys Ser Met Thr Lys Ala Pro Met Ile Asp Phe Ser Val Val
85 90
Ser Arg Asn Gly Val Ala Ala Leu Ala Gly Asp Gln Tyr Ile Val Ser
100 105 110
Val Ala His Asn Gly Gly Tyr Asn Val Asp Phe Gly Ala Glu Gly
115 120 125
Ser Asn Pro Asp Gln His Arg Phe Ser Tyr Gln Ile Val Lys Arg Asn
130 135 140
Asn Tyr Lys Ala Gly Thr Asn Gly His Pro Tyr Gly Gly Asp Tyr His
145 150 155 160
Met Pro Arg Leu His Lys Phe Val Thr Asp Ala Glu Pro Val Glu Met
165 170 175
Thr Ser Tyr Met Asp Gly Trp Lys Tyr Ala Asp Leu Asn Lys Tyr Pro
180 185 190
Asp Arg Val Arg Ile Gly Ala Gly Arg Gln Tyr Trp Arg Ser Asp Glu
195 200 205
Asp Glu Pro Asn Asn Arg Glu Ser Ser Tyr His Ile Ala Ser Ala Tyr
210 215 220
Ser Trp Leu Val Gly Gly Asn Thr Phe Ala Gln Asn Gly Ser Gly Gly
225 230 235 240
Gly Thr Val Asn Leu Gly Ser Glu Lys Ile Lys His Ser Pro Tyr Gly
245 250 255
Phe Leu Pro Thr Gly Gly Ser Phe Gly Asp Ser Gly Ser Pro Met Phe
260 265 270
Ile Tyr Asp Ala Gln Lys Gln Lys Trp Leu Ile Asn Gly Val Leu Gln
275 280 285
Thr Gly Asn Pro Tyr Ile Gly Lys Ser Asn Gly Phe Gln Leu Val Arg
290 295 300
Lys Asp Trp Phe Tyr Asp Glu Ile Phe Ala Gly Asp Thr His Ser Val
305 310 315 320
Phe Tyr Glu Pro His Gln Asn Gly Lys Tyr Phe Phe Asn Asp Asn Asn
325 330 335
Asn Gly Ala Gly Lys Ile Asp Ala Lys His Lys His Tyr Ser Leu Pro
340 345 350
Tyr Arg Leu Lys Thr Arg Thr Val Gln Leu Phe Asn Val Ser Leu Ser
355 360 365
Glu Thr Ala Arg Glu Pro Val Tyr His Ala Ala Gly Gly Val Asn Ser
370 375 380
Tyr Arg Pro Arg Leu Asn Asn Gly Glu Asn Ile Ser Phe Ile Asp Lys
385 390 395 400
Gly Lys Gly Glu Leu Ile Leu Thr Ser Asn Ile Asn Gln Gly Ala Gly
405 410 415

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Gly Leu Tyr Phe Glu Gly Asn Phe Thr Val Ser Pro Lys Asn Glu
 420 425
 Thr Trp Gln Gly Ala Gly Val His Ile Ser Asp Gly Ser Thr Val Thr
 435 440 445
 Trp Lys Val Asn Gly Val Ala Asn Asp Arg Leu Ser Lys Ile Gly Lys
 450 455 460
 Gly Thr Leu Leu Val Gln Ala Lys Gly Glu Asn Gln Gly Ser Val Ser
 465 470 475 480
 Val Gly Asp Gly Lys Val Ile Leu Asp Gln Ala Asp Asp Gln Gly
 485 490 495
 Lys Lys Gln Ala Phe Ser Glu Ile Gly Leu Val Ser Gly Arg Gly Thr
 500 505 510
 Val Gln Leu Asn Ala Asp Asn Gln Phe Asn Pro Asp Lys Leu Tyr Phe
 515 520 525
 Gly Phe Arg Gly Gly Arg Leu Asp Leu Asn Gly His Ser Leu Ser Phe
 530 535 540
 His Arg Ile Gln Asn Thr Asp Glu Gly Ala Met Ile Val Asn His Asn
 545 550 555 560
 Gln Asp Lys Glu Ser Thr Val Thr Ile Thr Gly Asn Lys Asp Ile Thr
 565 570 575
 Thr Thr Gly Asn Asn Asn Asn Leu Asp Ser Lys Lys Glu Ile Ala Tyr
 580 585 590
 Asn Gly Trp Phe Gly Glu Lys Asp Ala Thr Lys Thr Asn Gly Gly Leu
 595 600 605
 Asn Leu Asn Tyr Pro Pro Glu Glu Ala Asp Arg Thr Leu Leu Leu Ser
 610 615 620
 Gly Gly Thr Asn Leu Asn Gly Asn Ile Thr Gln Thr Asn Gly Lys Leu
 625 630 635 640
 Phe Phe Ser Gly Arg Pro Thr Pro His Ala Tyr Asn His Leu Gly Ser
 645 650 655
 Gly Trp Ser Lys Met Glu Gly Ile Pro Gln Gly Glu Ile Val Trp Asp
 660 665 670
 Asn Asp Trp Ile Asp Arg Thr Phe Lys Ala Glu Asn Phe His Ile Gln
 675 680 685
 Gly Gly Gln Ala Val Val Ser Arg Asn Val Ala Lys Val Glu Gly Asp
 690 695 700
 Trp His Leu Ser Asn His Ala Gln Ala Val Phe Gly Val Ala Pro His
 705 710 715 720
 Gln Ser His Thr Ile Cys Thr Arg Ser Asp Trp Thr Gly Leu Thr Ser
 725 730 735
 Cys Thr Glu Lys Thr Ile Thr Asp Asp Lys Val Ile Ala Ser Leu Ser
 740 745 750

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Lys Thr Asp Val Arg Gly Asn Val Ser Leu Ala Asp His Ala His Leu
 755 760 765
 Asn Leu Thr Gly Leu Ala Thr Phe Asn Gly Asn Leu Val Gln Ala Glu
 770 775 780
 Thr Arg Thr Ile Arg Leu Arg Ala Asn Ala Thr Gln Asn Gly Asn Leu
 785 790 795 800
 Ser Leu Val Gly Asn Ala Gln Ala Thr Phe Asn Gln Ala Thr Leu Asn
 805 810 815
 Gly Asn Thr Ser Ala Ser Asp Asn Ala Ser Phe Asn Leu Ser Asn Asn
 820 825 830
 Ala Val Gln Asn Gly Ser Leu Thr Leu Ser Asp Asn Ala Lys Ala Asn
 835 840 845
 Val Ser His Ser Ala Leu Asn Gly Asn Val Ser Leu Ala Asp Lys Ala
 850 855 860
 Val Phe His Phe Glu Asn Ser Arg Phe Thr Gly Lys Ile Ser Gly Gly
 865 870 875 880
 Lys Asp Thr Ala Leu His Leu Lys Asp Ser Glu Trp Thr Leu Pro Ser
 885 890 895
 Gly Thr Glu Leu Gly Asn Leu Asn Leu Asp Asn Ala Thr Ile Thr Leu
 900 905 910
 Asn Ser Ala Tyr Arg His Asp Ala Ala Gly Ala Gln Thr Gly Ser Ala
 915 920 925
 Ala Asp Ala Pro Arg Arg Arg Ser Arg Arg Ser Leu Leu Ser Val Thr
 930 935 940
 Pro Pro Thr Ser Ala Glu Ser Arg Phe Asn Thr Leu Thr Val Asn Gly
 945 950 955 960
 Lys Leu Asn Gly Gln Gly Thr Phe Arg Phe Met Ser Glu Leu Phe Gly
 965 970 975
 Tyr Arg Ser Gly Lys Leu Lys Leu Ala Glu Ser Ser Glu Gly Thr Tyr
 980 985 990
 Thr Leu Ala Val Asn Asn Thr Gly Asn Glu Pro Val Ser Leu Glu Gln
 995 1000
 Leu Thr Val Val Glu Gly Lys Asp Asn Thr Pro Leu Ser Glu Asn Leu
 1010 1015 1020
 Asn Phe Thr Leu Gln Asn Glu His Val Asp Ala Gly Ala Trp Arg Tyr
 1025 1030 1035 1040
 Gln Leu Ile Arg Lys Asp Gly Glu Phe Arg Leu His Asn Pro Val Lys
 1045 1050 1055
 Glu Gln Glu Leu Ser Asp Lys Leu Gly Lys Ala Gly Glu Thr Glu Ala
 1060 1065 1070
 Ala Leu Thr Ala Lys Gln Ala Gln Leu Ala Ala Lys Gln Gln Ala Glu
 1075 1080 1085

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Lys Asp Asn Ala Gln Ser Leu Asp Ala Leu Ile Ala Ala Gly Arg Asn
 1090 1095 1100
 Ala Thr Glu Lys Ala Glu Ser Val Ala Glu Pro Ala Arg Gln Ala Gly
 1105 1110 1115 1120
 Gly Glu Asn Ala Gly Ile Met Gln Ala Glu Glu Lys Lys Arg Val
 1125 1130 1135
 Gln Ala Asp Lys Asp Thr Ala Leu Ala Lys Gln Arg Glu Ala Glu Thr
 1140 1145 1150
 Arg Pro Ala Thr Thr Ala Phe Pro Arg Ala Arg Arg Ala Arg Arg Asp
 1155 1160 1165
 Leu Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Arg Asp Leu
 1170 1175 1180
 Ile Ser Arg Tyr Ala Asn Ser Gly Leu Ser Glu Phe Ser Ala Thr Leu
 1185 1190 1195 1200
 Asn Ser Val Phe Ala Val Gln Asp Glu Leu Asp Arg Val Phe Ala Glu
 1205 1210 1215
 Asp Arg Arg Asn Ala Val Trp Thr Ser Gly Ile Arg Asp Thr Lys His
 1220 1225 1230
 Tyr Arg Ser Gln Asp Phe Arg Ala Tyr Arg Gln Gln Thr Asp Leu Arg
 1235 1240 1245
 Gln Ile Gly Met Gln Lys Asn Leu Gly Ser Gly Arg Val Gly Ile Leu
 1250 1255 1260
 Phe Ser His Asn Arg Thr Gly Asn Thr Phe Asp Asp Gly Ile Gly Asn
 1265 1270 1275 1280
 Ser Ala Arg Leu Ala His Gly Ala Val Phe Gly Gln Tyr Gly Ile Gly
 1285 1290 1295
 Arg Phe Asp Ile Gly Ile Ser Ala Gly Ala Gly Phe Ser Ser Gly Ser
 1300 1305 1310
 Leu Ser Asp Gly Ile Arg Gly Lys Ile Arg Arg Arg Val Leu His Tyr
 1315 1320 1325
 Gly Ile Gln Ala Arg Tyr Arg Ala Gly Phe Gly Gly Phe Gly Ile Glu
 1330 1335 1340
 Pro His Ile Gly Ala Thr Arg Tyr Phe Val Gln Lys Ala Asp Tyr Arg
 1345 1350 1355 1360
 Tyr Glu Asn Val Asn Ile Ala Thr Pro Gly Leu Ala Phe Asn Arg Tyr
 1365 1370 1375
 Arg Ala Gly Ile Lys Ala Asp Tyr Ser Phe Lys Pro Ala Gln His Ile
 1380 1385 1390
 Ser Ile Thr Pro Tyr Leu Ser Leu Ser Tyr Thr Asp Ala Ala Ser Gly
 1395 1400 1405
 Lys Val Arg Thr Arg Val Asn Thr Ala Val Leu Ala Gln Asp Phe Gly
 1410 1415 1420

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Lys	Thr	Arg	Ser	Ala	Glu	Trp	Gly	Val	Asn	Ala	Glu	Ile	Lys	Gly	Phe
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Thr	Leu	Ser	Leu	His	Ala	Ala	Ala	Ala	Lys	Gly	Pro	Gln	Leu	Glu	Ala
				1445					1450					1455	
Gln	His	Ser	Ala	Gly	Ile	Lys	Leu	Gly	Tyr	Arg	Trp				
			1460					1465							